



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

W.D

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/541,465

07/06/2005

Shinji E. Mino

L7990.05102

8930

52989

7590

02/26/2007

STEVENS, DAVIS, MILLER & MOSHER, LLP

1615 L. STREET N.W.

SUITE 850

WASHINGTON, DC 20036

EXAMINER

ARORA, AJAY

ART UNIT

PAPER NUMBER

2811

MAIL DATE

DELIVERY MODE

02/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Interview Summary</b>	Application No. 10/541,465	Applicant(s) MINO ET AL.	
	Examiner Ajay K. Arora	Art Unit 2811	

All participants (applicant, applicant's representative, PTO personnel):

(1) David Ward.

(3) Ajay Arora.

(2) Sara Crane.

(4) \_\_\_\_\_.

Date of Interview: 13 February 2007.

Type: a) ☐ Telephonic b) ☐ Video Conference  
c) ☒ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No. ~~SEE BELOW~~ SWC

If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: 1.

Identification of prior art discussed: Bates reference and Rezvani reference.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☐ N/A. SEE BELOW SWC

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Sara W Crane  
Examiner's signature, if required

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant presented proposed amendment to claim 1 (refer to applicant's FAX of 2/12/2007) and presented arguments regarding why applicant considers amended claim 1 to be patentable over Bates in view of Rezvani. The key argument was that as stated in amended claim 1, Bates in view of Rezvani does not teach that said solid state battery is carried on the second diffusion layer.

It is agreed that the proposed amendment overcomes the current rejection. However, the proposed amendments raise new issues that would require further consideration and/or search.

TO: MR. AJAY ARORA

FAX: (571) 273-8347

FROM: DAVID WARD

RE: 10/541, 465

PERSONAL INTERVIEW

PAGES: 2 TOTAL

Proposed Claim Amendments  
Appl. No. 10/541,465

1. (Currently Amended) A battery mounted integrated circuit device, comprising:

- (1) a semiconductor substrate;
- (2) a solid state battery mounted on said semiconductor substrate;
- (3) an integrated circuit mounted on said semiconductor substrate;
- (4) a first diffusion layer, containing an N-type impurity, formed between a region of said semiconductor substrate where said solid state battery is mounted and a region of said semiconductor substrate where said integrated circuit is mounted; and
- (5) a second diffusion layer, containing an N-type impurity, formed below said region of said semiconductor substrate where said solid state battery is mounted, and overlapping with said first diffusion layer, wherein:

said solid state battery comprises a positive electrode, a negative electrode, and a solid electrolyte disposed between said positive electrode and said negative electrode,

the concentration of said N-type impurity in said first diffusion layer is higher than the concentration of said N-type impurity in said second diffusion layer, and

at least when said solid state battery is being charged and discharged, said first diffusion layer and said second diffusion layer have a positive potential not less than the potential of the positive electrode with respect to the negative electrode, and

said solid state battery is carried on the second diffusion layer.

2. (Original) The battery mounted integrated circuit device in accordance with claim 1, wherein the concentration of said N-type impurity in said first diffusion layer is not less than  $1 \times 10^{19}$  atoms/cm<sup>3</sup>.

3. (Previously Presented) The battery mounted integrated circuit device in accordance with claim 1, wherein the ratio of the concentration of said N-type impurity in said first diffusion layer to the concentration of said N-type impurity in said second diffusion layer is not less than  $1 \times 10^1$  and not more than  $1 \times 10^5$ .

Claims 4-6 (Cancelled).

7. (Original) The battery mounted integrated circuit device in accordance with claim 1, further comprising a wiring layer for connecting said first diffusion layer with the outside.

8. (Original) The battery mounted integrated circuit device in accordance with claim 1, further comprising a potential controlling section for controlling a potential to be applied to said first diffusion layer and said second diffusion layer.